Statement of Qualifications

November, 1990

Prepared and issued by IT Field Analytical Services.

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The environmental management business relies on trace parts per million/parts per billion measurements from which conclusions of far reaching, and often expensive, proportions are drawn. Field sampling and analytical techniques are generally considered the most probable source of "unreliable" data; therefore, proper planning, collection methods, documentation, quality assurance/quality control, and laboratory coordination are essential to generating useful and defendable data.

Field Analytical Services is IT Corporation's custom field sampling, field analytical, and sample management consulting group and the only sampling service within IT that specializes in the collection, documentation, planning, and management of environmental sampling projects. FAS was brought together as a business group within the IT Analytical Services Division to standardize sample collection activities in order to reduce the liability associated with collecting environmental samples.

FAS warrants its commitment to provide its clients with professionally qualified personnel who are trained and experienced in using established and generally accepted field sampling and field analytical techniques and methodologies.

IT ANALYTICAL SERVICES (ITAS)

ITAS routinely integrates its services with other IT activities including environmental engineering, risk assessment, remedial action, on-site incineration, industrial health and safety, pollution control, and emergency response. The result is a total information and service package that leads to the solution of the client's environmental and regulatory concerns.

IT Analytical Services (ITAS), the analytical chemistry division of IT Corporation (IT), is nationally recognized as one of the largest analytical organizations dedicated to the analysis of hazardous, radioactive, and mixed waste. ITAS provides analytical services to both government agencies and commercial industry.

As a national leader, ITAS is committed to offering the broadest range of capabilities. This diversity of services is rarely available from any other single provider of environmental laboratory services. Of the eleven ITAS laboratories, seven provide a combination of full service organic, inorganic, and classical analyses on a wide range of sample matrices. Two laboratories are dedicated to the analysis of radioactive (RAD) and mixed waste (MW); a third laboratory has full service and RAD/MW capabilities. As part of its commitment to quality control and technology development, ITAS also has a laboratory that specializes in treatability studies, method development, and high hazard analyses.

ITAS' network of 11 full-service laboratories benefits clients by providing them with a single national supplier of environmental laboratory services. This eliminates the need to search for additional suppliers of specialized laboratory services. ITAS' single laboratory management system and uniform quality assurance/quality control (QA/QC) program allow these laboratories to respond to testing needs on a regional basis as well as to provide backup services to each other on a national basis. This ensures an adequate capacity for handling large numbers of samples.

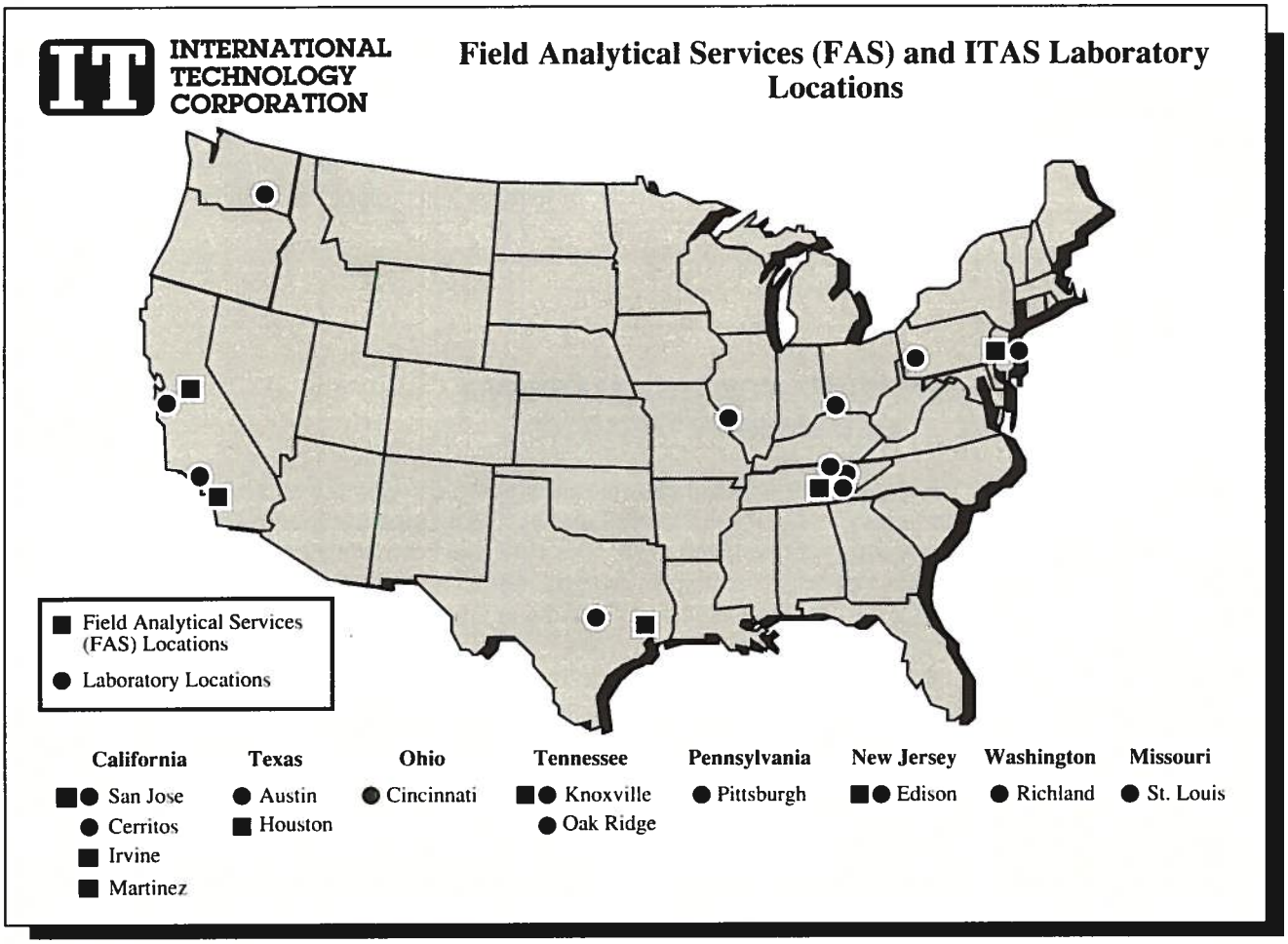
ITAS also offers rapid turnaround time services to meet the needs of clients. The laboratories are configured to perform analyses as required by the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund), the Clean Water Act (CWA), the Safe Drinking Water Act (SDWA), the Clean Air Act (CAA), and Occupational Safety and Health Administration requirements (OSHA), the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), and the Toxic Substances Control Act (TSCA).

The ITAS objective is to serve as a custom testing and consultation group offering the client a full range of routine and specialized analyses including: the analysis of polychlorinated biphenyls (PCBs), pesticides, and herbicides; high hazard samples such as dioxins and furans; geotechnical testing; MW analyses; treatability testing and technology evaluations; and analytical project management.

FIELD ANALYTICAL SERVICES (FAS)

Field Analytical Services (FAS) was created in the spring of 1985 from a combination of selected technical professionals, technicians, and managers from IT's Engineering and Environmental Services, Remediation, and Analytical Services divisions. As an operational group within the ITAS division, the group was originally developed to serve as liaison between field operations and IT's network of analytical laboratories. Since then, FAS has grown into a full service, national group with more than 30 chemists, biologists, geologists and other environmental scientists supported by analytical and field sampling technicians and administrative personnel. The network of FAS and ITAS facilities available for field sampling, field analytical, and analytical laboratory support provides national coverage for the full range of environmental analytical needs.

FAS comprises a select group of multidisciplinary IT professionals



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The FAS technical staff has demonstrated ability in conducting field analysis, field sampling, sample management, data management, documentation, and other special environmental field sampling and analytical activities.

FAS' current, as well as its original, mandate is to conduct sampling and analytical programs and design systems, protocols, and training programs for field sampling and field analytical projects that maintain the integrity of any sample collected and the resulting analytical data by ensuring that samples are correctly taken, properly packaged, shipped according to Department Of Transportation (DOT) guidelines and transmitted to the laboratory with the appropriate chain-of-custody records. Because FAS professionals realize that any environmental project in which they are involved may end up in court, all sampling plan development, sampling plan implementation, and the documentation of each sampling event are conducted to ensure that sample and analytical data will hold up under the closest legal and regulatory agency scrutiny.

In addition to its full service capabilities - including site assessment, sampling plan design and implementation, data management and transfer, analytical program management, and remediation support - FAS routinely integrates its special services with analytical testing, environmental engineering, risk assessment, nuclear decontamination and decommissioning, remedial action services, on-site incineration, real estate contaminant assessment, pollution control, and emergency response.

SPECIALTY SERVICES

The services outlined in this section represent arenas where FAS' senior analytical specialists have developed expertise. FAS can provide full range capabilities for each of these areas: program development, project management, financial management, consultation only, or total project support through the final report issue or project audit.

TRIAL BURN AND PERFORMANCE TEST SAMPLING AND ANALYTICAL PROGRAM MANAGEMENT

FAS has broad experience in designing and carrying out all aspects of sampling and analytical program management for trial burns and performance test burns for hazardous waste incinerators. The FAS trial burn analytical team has worked extensively with the multidisciplinary teams involved in conducting tests on solid, liquid, and sludge incinerators. Sampling documentation and analytical laboratory interface are an integral part of a successful trial burn testing program. Following the development of a sampling and analytical plan and QA/QC plan, FAS is qualified to provide the following on-site services:

- Sample collection for all solid, liquid, or aqueous samples
- Documentation for all samples collected including stack/emission samples and process samples
- Packaging and coordination of site-to-laboratory sample transport and shipping including sample coding.

Once the samples have arrived at the appropriate laboratory, FAS chemists will assist the laboratory analysts as needed with the complex analytical challenges that the analysis of trial burn samples often provides. Because of the analytical complexity, FAS chemists are aware that new sample preparation and analytical methodologies may have to be developed and that "being in compliance" means being able to document and defend every required deviation from established methods.

FAS can provide analytical program management and/or coordination for trial burns and performance tests in support of incineration permit applications. The FAS trial burn team specializes in method development for the analysis of trial burn samples.

Following the on-site collection of samples and their analysis in the laboratory, FAS takes responsibility for the data management, summarization, and writing of the trial burn final report sections dealing with the sampling, analytical, and QA/QC programs. These sections of the trial burn final report provide critical support to engineering calculations and reports that are submitted to the regulatory agency.

When compiling the sampling, analytical, and QA/QC reports for the final project report, all documentation, data analysis reports, and electronic media data base information will adhere to client and regulatory agency requirements to ensure a successful incineration permit application.

DATA VALIDATION

Appropriate application of analytical results may require that data generated by a laboratory be subjected to an independent, detailed evaluation that focuses on the "usability" of the results. This independent evaluation often includes editing, screening, checking, auditing, flagging, certification, and review of the already issued data. This type of validation is performed routinely by the U.S. Environmental Protection Agency (EPA) under the Contract Laboratory Program (CLP) through the use of a variety of subcontractor organizations. FAS uses the same EPA guidelines to validate data generated under the Hazardous Waste Remedial Actions Program (HAZWRAP) designed to assist with the cleanup of U.S. military bases. "Level D" data are generated according to full CLP (or CLP-like) protocols including the complete data package deliverables; Level D validation efforts include a detailed review and cross-check of calculations, raw sample data, calibrations, associated blanks, and QC results. Worksheets are completed throughout the validation process, and qualifiers are attached to individual data points as appropriate either to clarify the result itself or as a caution to the data user when a result may not be fully reliable.

Data validation is an independently conducted audit of laboratory generated data. FAS has performed data validation in the evaluation of CLP or CLP-like data packages for TPH (high and low boilers), metals, volatiles, semi-volatiles, pesticides, herbicides, PCBs, and general chemistry parameters.

A "Level C" HAZWRAP data package review encompasses far less detail because no raw data are included in the package delivered from the laboratory; therefore, it is not available for validation. Instead, a review of the forms containing summarized data, including calibrations, blanks, QC results, and reported sample results is performed for the Level C package. As with Level D, qualifiers are placed on the data where appropriate based on the available information.

There are tremendous liabilities associated with the interpretation of data. Once a client's needs are determined, FAS' analytical chemists can apply the EPA validation guidelines to any set of data. The overriding goal of the validation effort is to ensure that technically valid and legally defensible data are provided to the project team for the assessment, investigation, remediation, or closure of a site.

FIELD ENVIRONMENTAL SAMPLING TRAINING

FAS provides field environmental sampling training as part of its list of available services. In the past, field sampling has sometimes been regarded as a fairly simple, routine part of a cleanup or monitoring effort, and there have been few highly developed, current and dynamic courses available to train field sampling personnel. In recent years, however, as environmental assessment has become more and more complex - and litigious - professionals in the environmental management industry have become increasingly aware that field sampling requires highly trained, competent scientists, especially field analytical specialists, if analytical results are to be assured as accurate and defensible.

The FAS field environmental sampling program is structured to develop both QA managers and field samplers with strong, usable sampling and sample planning skills.

The proper collection of samples is a fundamental component in the success of any environmental management project. FAS can provide supervisory, QA, and field personnel with the training needed to properly plan, conduct, and document field sampling activities.

Using the FAS approach to field documentation, the sampler will be able to submit the collected data as evidence in case of litigation and the data will be able to withstand regulatory agency scrutiny. The course has several main objectives, and the attendee, upon successful completion, will be trained to:

- Understand the importance and potential legal ramifications of sampling and analysis programs
- Appropriately plan sampling and analysis programs
- Properly collect environmental samples of various matrices
- Establish and maintain chain-of-custody protocols and procedures from initial sample collection to final disposition
- Properly take field measurements
- Properly handle environmental samples
- Correctly and completely document sample collection
- Accurately track samples
- Communicate effectively with the analytical laboratory doing the analyses.

The primary goal of the FAS training program is to develop the strongest possible sampler or sampling team. ***IF SAMPLES ARE NOT PROPERLY TAKEN, ALL SUBSEQUENT ANALYSES AND CORRECTIVE ACTION ARE NOT SCIENTIFICALLY OR LEGALLY DEFENSIBLE.*** FAS can train employees to take samples in a legally defensible manner.

PROJECT MANAGEMENT

As part of its full service capabilities, FAS is experienced in the total management of field analytical and/or field sampling programs. FAS routinely uses ITAS laboratory pricing for analyses provided by the appropriate laboratory and can interface with other environmental engineering and assessment companies to provide total project management for projects with a large field sampling and analytical component.

The FAS senior staff can manage or assist in the management of environmental field projects with a significant field analytical or field sampling component.

The FAS Senior Field Analytical Specialists also have extensive experience serving as task managers for the sampling and/or field analytical portion of large Remedial Investigation (RI) or Remedial Investigation/Feasibility Studies (RI/FS) projects. FAS personnel routinely perform analytical program development and management of both large and small sampling projects, contaminant assessments, real estate transfer assessments, hazardous waste incinerator trial burns and performance tests, and sample data management projects.

One of the main strengths of the FAS overall team approach to project management is the development of a very strong administrative/financial support group that is qualified to assist with client interface and provide an added depth to overall project or task management.

SPECIALTY SERVICES SUMMARY

In summary, FAS, in addition to environmental sampling, offers several specialty services with skilled teams that have developed and refined an overall program for the following:

- Trial burn and performance test sampling and analytical program development and management
- Data validation
- Field environmental sampling training
- Sampling and analytical project and task management.

Field sampling and field analysis comprises the base of FAS experience, but FAS has developed several specialty service areas that offer full program management capabilities.

FAS also has pioneered other specialized areas such as field sampling for trace contaminants such as dioxin, and field analyses, most notably the development of field screening techniques and analytical methods in support of RI/FS, CERCLA field studies, and underground storage tank (UST) management. Because field screening/portable gas chromatography (GC) capabilities are a fundamental element in FAS' field analytical services, field GC technology is discussed on Pages 11-12.

The specialty services listed here are not found in most hazardous waste management firms. These skills have evolved from years of experience planning, conducting, coordinating, and managing field sampling and analytical projects. FAS' multidisciplinary technical specialists continually review new and emerging sampling, statistical evaluation, documentation, QA/QC, field analytical, and mobile analytical techniques to determine if these techniques meet the liability-reducing objectives of FAS/ITAS.

FIELD SAMPLING PLAN DEVELOPMENT AND IMPLEMENTATION

PLAN DEVELOPMENT

The importance of the project sampling plan cannot be over-emphasized. Without a basic work plan, field teams cannot document what needs to be done or that they have, in fact, proceeded according to established standards. FAS is experienced in developing all aspects of field environmental sampling plans.

The overall objective of any FAS sampling activity is to remove a small portion of the environment that is representative of the entire body. FAS realizes that the importance of proper sample collection and handling procedures cannot be overemphasized. Standard operating procedures (SOPs) have been developed by the FAS professional technical staff for all phases of sample collection, documentation, handling, and transporting. To ensure that the sampling process is effective and complete, FAS routinely offers field sampling services in the following areas:

- Developing sampling, data management, and QA/QC plans for sample and analytical data. These plans are designed to meet regulatory agency requirements and individual client/site needs.
- Determining sample management needs including methods of labeling, tracking, documenting collection and transport, confirmation of laboratory turnaround and holding times.
- Defining project-specific analysis requirements and the analytical methods to be used.
- Providing qualified and experienced field samplers, field chemists, and data management personnel.
- Performing laboratory interface and scheduling to ensure prompt handling of samples.
- Expediting, tracking, and evaluating samples, analyses, and analytical results.
- Bringing analytical services to the field; for example, analytical instrumentation via either large trailer mobile laboratories or smaller "portable" labs, field GC capabilities, and data management hardware and software.
- Planning field sampling activities according to existing OSHA regulations and helping to make certain that all FAS portions of any IT field project are conducted in a safe manner.

SAMPLING MATRIXES

FAS field analytical and field sampling specialists will make recommendations and decisions on sampling plan development for each of IT's clients based on the following:

LOCATION OF SAMPLE COLLECTION:

Determined by random or statistical methods
Dependent on homogeneity of the matrix to be sampled

TYPE OF SAMPLE DEPENDENT ON:

Matrix to be sampled
Media to be used
Constituents to be analyzed
Variability of the condition of the media
Intended use of the analytical data
Purpose of the investigation
Monitoring requirements of the permitted facilities
Accessibility of sampling locations and safety

TYPE OF SAMPLE:

Grab	Composite
Split	Duplicate
Replicate	Field blanks

MATRIX SAMPLED:

Groundwater	Surface water
Sediment	Soil
Sludge	Drums
Waste	Air
Biota	Trial Burn/Emission

SAMPLE COLLECTION

FAS personnel collect samples from a wide variety of matrixes including air, water, soil, sludges, and biota. Samples are collected either manually (dredge or piston sampler; auger; bailer) or by using an automatic sampler depending on the matrix being sampled, the type of sample, and the parameters being analyzed.

Manual techniques are normally used for collecting grab samples and/or for performing in situ determinations and can also be used for composite sampling in lieu of automatic samplers. All manual techniques are documented and are traceable to the sampler and equipment used.

Automatic samplers are frequently used to collect composite samples of water or wastewater for a specific period of time with minimal manpower requirements. These samplers are configured as stand-alone, self-contained devices that can be adjusted to collect timed-interval samples.

Whether samples are collected manually or with automatic samplers, FAS personnel properly decontaminate the equipment before each use to ensure the reliability of the samples collected.

STANDARD SAMPLING PROCEDURES

Sampling methods used follow FAS SOPs. Each SOP is developed to ensure the use of proper sample collection techniques and standardized methods. These procedures follow EPA's guidelines for environmental sample collection and receive rigorous QA/QC review from the ITAS internal Quality Assurance Group.

FAS is also aware of the unique sampling requirements of each EPA region as well as state and local requirements such as California, Florida, and New Jersey.

FIELD ANALYTICAL CAPABILITIES

Because FAS management realizes that sampling in the environment for chemical analysis is a complex and dynamic exercise, it has made a commitment to the acquisition and continual training of environmental and analytical chemists who are dedicated to the effort of exploring and defining meaningful sampling protocols. These field analytical professionals use state of the art field screening and field analytical instrumentation and accompanying methodologies in conjunction with approved field and laboratory QA/QC measures to conduct analyses that will meet regulatory agency requirements for analytical standards.

FAS has direct experience with several types of field analytical efforts and a variety of field analytical instruments.

PORTABLE FIELD GAS CHROMATOGRAPHY SCREENING

Rapid turnaround of analytical data under controlled conditions is essential to the success of site investigations and remediation programs. Portable field GC services include purge and trap screening of samples for volatiles, benzene, toluene, ethyl benzene, xylene (BTEX), and total petroleum hydrocarbons (TPH) low boilers in soil, soil gas, and water. Field screening is also available for semivolatiles in soil and sediment; PCBs in soil, sediment, and wipe samples; volatile aliphatic hydrocarbons in air and soil; and TPH high boilers in soils and soil gas.

Applications include:

- UST Tank Removals [Luft (Mod. 8015)], [EPA 8020]
- UST Soil Gas Studies [Luft (Mod. 8015)], [EPA 8020]
- UST Vapor Extraction System Optimization [LUFT (Mod. 8015)], [EPA 8020]
- PCB Delineation Screenings [Published Methods (Splitter, EPA Region 1, ASTM)]
- PCB Cleanup Screenings [Published Methods (Splitter, EPA Region 1, ASTM)]
- VOC Site Remediation [EPA 8010, 8015, 8020]
- Chlorinated Pesticide Screening [Modification of EPA 8080]

Possible uses include:

- UST removal for gas stations for either gasoline or diesel fuel
- Property/real estate transfers
- Emergency response: transformer fire; overturned truck or train derailment
- Industrial hygiene
- Remedial investigations
- Remediation of site with multiple contaminants
- Waste treatment

FAS has expanding experience and capabilities with the latest field chromatographic instruments including the Photovac 10S50 and the SRI 8610. Senior field analytical specialists assisted by data management specialists have combined field analytical instrumentation and portable computer hardware and specialized GC software to produce rapid analytical response to on-site project managers who need to make decisions in the field. A single FAS field chemist can run from 8 to 20 samples per day in the field, depending on the analytical parameters, allowing not only rapid turnaround time but also immediate cost control .

FIELD INFRARED (IR) SCREENING

FAS has the capability to perform EPA Methods 418.1 and 413.1, Total Recoverable Petroleum Hydrocarbon (TRPH) and Total Recoverable Oil and Grease (TROG), respectively. Both of these methods are used primarily for field surveying. These methods consist of extracting the sample with freon. The TRPH or oil and grease concentration is measured by an infrared analyzer on the extract. The nondispersive infrared (NDIR) analyzer used by FAS is the Horiba Model OCMA 220. This particular model is designed for reading up to 200 ppm TRPH. During an eight-hour period, 30 samples can be assayed along with the required QA/QC and calibration standards.

Space requirements are minimal for these methods. A 10-foot trailer with a table, desk, and refrigerator provides enough room or, if analysis is limited, this setup could easily be performed in the back of a van. These methods are a cost-effective and time-efficient way of providing on-site analysis for various remediation projects. For example, Method 418.1 is used during the excavation of the soil for disposal or bioremediation where heavy, expensive equipment is present and where there may be time, space, and budgetary restraints.

FIELD WET CHEMICAL TECHNIQUES SCREENING

Spot testing offers a unique opportunity to deliver results on site and can easily be tailored to meet the needs of any project.

Wet chemical spot testing applies to sensitive and selective detection methods that are based on chemical reactions. These spot tests are conducted to detect both organic and inorganic compounds. In general, spot test procedures are simple, rapid, and relatively inexpensive. In most cases, it is necessary to conduct certain preliminary tests to learn the most advantageous reaction conditions.

MOBILE LABORATORIES

To meet the need for multiple parameter field analyses with rapid turnaround, FAS has a fleet of specially designed mobile laboratories. These laboratories can be equipped to furnish organic, inorganic, and radiochemical analyses safely and accurately anywhere. Applications of the laboratories have included analytical chemistry support for emergency response activities, waste disposal site monitoring, site remediation industrial plant surveys, and incineration trial burn studies. These mobile laboratories are particularly cost-effective at remote project locations where sample turnaround time is the critical element of the project.

When a project demands, the mobile laboratories can be brought to a site fully equipped and totally self-contained, accompanied by a generator to supply power and a support truck for the storage of laboratory supplies. This allows for on-site analytical capabilities that can be tailored to the specific requirements of each project. Instruments are kept under a maintenance/calibration program in a similar manner as a fixed base laboratory.

Decisions about when and whether to use a mobile or portable rather than a fixed-base laboratory can be made by consulting an ITAS or FAS representative.

A special high-hazard mobile laboratory is available for the analysis of complex samples suspected of high toxicity. This laboratory can be divided into three areas: an office and change room, an interlock change room, and a laboratory area with independent sample interlock. The laboratory area is a "change in-shower out" interlock operation maintained under negative pressure to ensure total containment.

Examples of analytical services that FAS has provided in mobile laboratories include:

- Gas chromatography/mass spectrometry (GC/MS)
- Gas chromatography/electron capture detection (GC/ECD)
- Gas chromatography/flame ionization detection (GC/FID)
- High performance liquid chromatography (HPLC)
- Atomic absorption (AA: flame/flameless/hydride) spectroscopy
- UV visible spectrophotometry
- Infrared spectroscopy
- Extraction and sample preparation
- Extraction procedure, toxicity extraction
- pH/detection ion analysis
- Total organic carbon analysis
- Total organic halogen analysis
- Btu and flash point determination.

ON-SITE DATA MANAGEMENT, SAMPLE PACKAGING, AND SAMPLE TRACKING

FAS routinely employs its mobile trailers and laboratories for on-site analyses data management and sample handling. FAS uses its on-site office/data management/ sample packing trailer for the record keeping, preparation, handling, and packaging of samples that will be sent to fixed laboratory facilities where actual analysis will be performed. This trailer functions as the central record keeping, final packaging, and dispatch station for samples that will leave a site.

This on-site facility is often equipped with an IBM personal computer or compatible unit for tracking sample status and results and for facilitating the maintenance of central analytical project files at the site. Laboratory staff are trained in document control and sample tracking.

QUALITY ASSURANCE/QUALITY CONTROL

Quality control samples are collected and/or prepared and analyzed to monitor potential cross contamination and to allow the evaluation of precision and accuracy at both the field and laboratory levels.

QA PLAN DEVELOPMENT

FAS frequently assists clients in the review, revision and preparation of new and existing QA plans and SOPs with the dual goal of meeting the quality of data objectives required by the client and providing a cost-effective program. Guidelines and requirements established by EPA or the applicable state regulatory agency are followed to ensure that a valid and acceptable program is produced.

FIELD QA/QC

All FAS sample collection activities are traceable through field records to the individual who collected the samples, to the specific piece of equipment used to collect the samples, and to the specific instrument used for in situ determinations (where applicable). In addition, all sampling activities include provisions for the routine collection of QC samples to ensure that the field procedures provide representative and valid results. FAS sampling activities usually include the collection of equipment rinsate, duplicate samples, field blanks, trip blanks, and split samples.

LABORATORY QA/QC

All the laboratories in the ITAS network adhere to strict, uniform QA/QC guidelines. Central administration of the overall QA/QC program, which includes internal audits as well as a number of externally administered audits, ensures that each laboratory meets required standards. A list of certifications for any ITAS laboratory is available upon request.

DOCUMENTATION

FIELD DOCUMENTATION

Because most of the projects in which FAS has been involved have resulted in legal and/or regulatory agency reviews, all members of the FAS staff have been trained to conduct any sampling and analytical activity in anticipation of close scrutiny. Documentation is FAS' most fundamental deliverable and represents the majority of time spent on almost any project. A complete correspondence and document file is compiled and maintained for each FAS project. Electronic media are also kept, maintained, and archived as appropriate.

The most routine forms used by FAS field personnel include:

- Sample Collection Log
- Specimen Collection Log
- Sample Labels
- Custody Tape Seals
- Chain-of-Custody Record forms
- Request for Analysis forms
- Daily Activity Log
- Records of Telephone Call
- Signature Page
- Master Log
- Document Release
- Drawings

LEGALLY SUPPORTABLE DOCUMENTATION

Two of these forms are ITAS required forms: the Chain-of-Custody Record and Request for Analysis forms are mandatory for admitting samples into any ITAS laboratory and all regulations are strictly adhered to by FAS personnel.

Chain-of-Custody Record: (Figure 1) Possession of samples collected or prepared in the field must be accounted for from the time they are collected or prepared until disposal. Sample custody is required as evidence in legal proceedings.

Request for Analysis: (Figure 2) This form constitutes the request on the part of a client for an IT laboratory to perform the specified analysis on any sample accompanying the form and will be used as an authorization for the laboratory to perform the analysis.

With the support of detailed documents recorded at every stage of operations, FAS will assist in legal case preparation, design presentation graphics, and will provide expert testimony and/or regulatory agency interface on request.

CHAIN-OF-CUSTODY RECORD

R/A Control No. _____

C/C Control No. 48748

PROJECT NAME/NUMBER _____ LAB DESTINATION _____

SAMPLE TEAM MEMBERS _____ CARRIER/WAYBILL NO. _____

Sample Number	Sample Location and Description	Date and Time Collected	Sample Type	Container Type	Condition on Receipt (Name and Date)	Disposal Record No.

Special Instructions: _____

Possible Sample Hazards: _____

SIGNATURES: (Name, Company, Date and Time)

1. Relinquished By: _____ 3. Relinquished By: _____

Received By: _____ Received By: _____

2. Relinquished By: _____ 4. Relinquished By: _____

Received By: _____ Received By: _____

WHITE - To accompany samples
YELLOW - Field copy

Figure 1

R/A Control No. 52230

C/C Control No. _____

REQUEST FOR ANALYSIS

PROJECT NAME _____
PROJECT NUMBER _____
PROFIT CENTER NUMBER _____
PROJECT MANAGER _____
BILL TO _____

PURCHASE ORDER NO. _____

DATE SAMPLES SHIPPED _____
LAB DESTINATION _____
LABORATORY CONTACT _____
SEND LAB REPORT TO _____

DATE REPORT REQUIRED _____
PROJECT CONTACT _____
PROJECT CONTACT PHONE NO. _____

Sample No.	Sample Type	Sample Volume	Preservative	Requested Testing Program	Special Instructions

TURNAROUND TIME REQUIRED: (Rush must be approved by the Laboratory Project Manager)

Normal ____ Rush ____ (Subject to rush surcharge)

QC LEVEL: (Levels II and III subject to surcharge; project-specific requirements must be submitted to lab before beginning work)

I ____ II ____ III ____ Project Specific ____

POSSIBLE HAZARD IDENTIFICATION: (Please indicate if sample(s) are hazardous materials and/or suspected to contain high levels of hazardous substances.)

Non-Hazard ____ Flammable ____ Skin Irritant ____ Highly Toxic ____ Other ____ (Please specify)

SAMPLE DISPOSAL: (Please indicate disposition of sample following analysis. Lab will charge for packing, shipping, archive and disposal.)

Return to Client ____ Disposal by Lab ____ Archive ____ (indicate number of months.)

FOR LAB USE ONLY

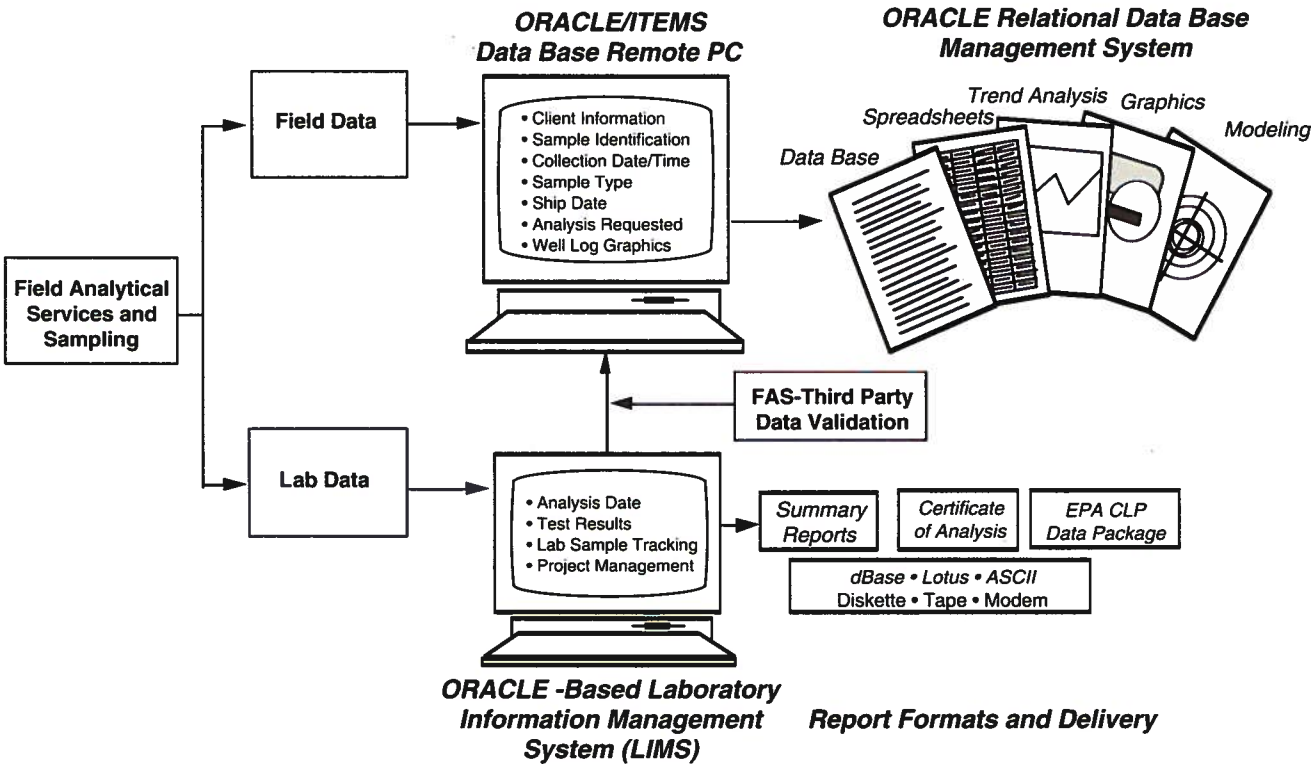
Received by _____ Date/Time _____

WHITE - Original, to accompany samples
YELLOW - Field copy

Figure 2

DATA MANAGEMENT

Being able and equipped to manage the volume of data generated by an environmental project is crucial. The goal of any IT data management system is to organize and give value to field, analytical, scientific, financial, and project management information.



IN-HOUSE CAPABILITIES

FAS can provide project data bases that integrate field data with the results of analyses from the ITAS Laboratory Information Management System (LIMS) and/or the IT-developed Environmental Management System (ITEMS) designed to link all the IT project information management systems nationwide and to generate state of the art reports, graphics, models, trend analyses, CAD, and project financial information for FAS clients. These systems can operate alone or together depending on the needs dictated by the project.

FIELD CAPABILITIES

FAS specialists can arrive on site with the hardware and software necessary to provide real-time information in order to better evaluate locations of contamination, extent of plume migration, etc. The FAS data base system uses ORACLE, the most sophisticated relational data base software on the market, which ensures the ability to generate ad-hoc reports on demand.

EXPERIENCE

FAS has been and is currently active in a wide variety of projects, including those governed by RCRA, CERCLA, CWA, SDWA, CAA, FIFRA, and TSCA. These studies include site investigations, emergency response actions, routine monitoring programs, and specialized sampling activities such as trial burns and soil gas monitoring. FAS involvement has ranged from development of sampling plans, including the project-specific Quality Assurance Project Plan, to sample collections to the analysis of samples and final report generation.

Because of FAS' years of experience as samplers, chemists, field chemists, field analytical specialists, and technical consultants, clients rely on FAS to help sample complex environmental situations. These problem situations may require a combination of routine services as well as specialized services that must be developed specifically for a project. Abstracts of representative's case histories are presented in the following sections. A summary is provided on Page 22.

GOVERNMENT CLIENTS

CASTLE AIR FORCE BASE, MERCED, CALIFORNIA

This project is an RI/FS on a National Priority List (NPL) Superfund site. IT, as a subcontractor to Martin Marietta Energy Systems, is responsible for all plan development, engineering, analytical, field sampling, and reporting activities. FAS was instrumental in development of the site-specific Work Plan, Sampling and Analysis Plan, Quality Assurance/Quality Control Plan, and the Health and Safety Plan. FAS is responsible for all on-site sampling, including coordination of geophysical, geochemical, and purge water disposal. FAS designed, specified, and installed dedicated groundwater monitoring systems for 110 wells. This project will take approximately five years and generate more than 3,000 samples.

FAS has been involved in a large number of government contracts at national, state, and local levels.

DEPARTMENT OF DEFENSE (DOD) SUBCONTRACT

FAS is providing the analytical support for the remediation at a remote DOD site. FAS has staffed a mobile laboratory equipped with gas chromatographs (FID, PID, ECD, Purge and Trap), AA flame spectrophotometer, infrared spectrophotometer, and peripherals. The two on-site chemists are analyzing soil, sediment, and water samples for PCBs, total petroleum hydrocarbons, total organic carbon, total lead, pesticides, volatile organics, and purgable aromatic hydrocarbons. These samples are run to Naval Environmental and Energy Support Activity (NEESA) level "C" QA/QC standards. More than 700 samples will be analyzed over a four-month period at this island location.

DOD SUBCONTRACT

FAS is subcontracting to Martin Marietta Energy Systems on this major RI/FS project that involves the sampling of soil borings, sediment, surface water, groundwater, and biota for heavy metals contamination. ITAS will be performing the analyses according to EPA CLP guidelines. More than 3,000 samples will be collected. The work on this project will be conducted in environmentally sensitive areas where specific flora and fauna have been placed on the list of endangered species.

MATHER AIR FORCE BASE, RANCHO CARDOVA, CALIFORNIA

This project is an RI/FS conducted for Martin Marietta Energy Systems. FAS responsibilities include work plan development, soil organic vapor (SOV) survey, sampling of soil borings, and quarterly groundwater monitoring. The SOV involves the extraction of volatile and semivolatile components from the vadose zone above the groundwater table. These samples are analyzed on site using portable gas chromatographs with either flame or photoionization detectors. The SOV data are used to map groundwater contaminant plumes and to select future monitoring well locations. This project is expected to last several years and generate more than 3,000 samples.

LOUISIANA ARMY AMMUNITION PLANT (LAAP), SHREVEPORT, LOUISIANA

The LAAP Thermal Remediation project was performed as Phase III of a contract awarded to IT Corporation by the U.S. Army Corps of Engineers (USACE) in April, 1987. The work performed encompassed excavation of sediments and soils containing amounts of nitro-explosives, incineration of this material (approximately 102 tons of soil), disposal of processed soil, site closure, and on-site treatment of 53 million gallons of explosives-contaminated "pink water."

IT Corporation has several large contracts with military bases nationwide and FAS is frequently asked to take the lead on all environmental sampling, data management, field SOV, and documentation/ report writing activities.

FAS provided all on-site analytical support including configuring and running a mobile laboratory. FAS chemists analyzed for explosives operating in soil, ash, and water samples as well as oil and grease, total organic carbon (TOC), and pH in waters to support the National Pollutant Discharge Elimination System (NPDES) permit. Rapid turnaround of results was provided allowing incineration to progress with minimal interruption. Tight control of sampling procedures and diligent attention to both analytical techniques and record keeping has earned FAS, as well as the IT team, praise from USACE and the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA), the primary regulatory agencies involved with this project. The FAS mobile laboratory routinely passed all audits and consistently met USATHAMA's stringent and evolutionary QC requirements. The FAS field analytical team was co-recipient of a national IT Quality Award for their performance on this major project.

TOOLE ARMY DEPOT, TOOLE, UTAH

FAS was contracted to assist in the engineering assessment of three pilot air pollution control systems to incinerate chemical weapons. Detailed sampling and analysis plans were developed and implemented to obtain data for assessing control device performance. FAS participated in a special pre-trial burn study that included sampling and analysis from the incinerator. The third major activity was to verify analytical methods for analysis of PCBs in the test burn samples. This required evaluation to establish the instrument detection limits achievable, the precision and accuracy of the sample preparation and analysis method, and the background matrices that might affect achievement of the analytical goals.

MORTON INTERNATIONAL, CHICAGO, ILLINOIS

Over a five-year period, FAS has supported IT-Remediation by providing analytical and field sampling expertise at four separate responsible party funded Superfund site cleanups. FAS designed and implemented all sampling and analytical work plans, which included soil contamination delineation, monitoring well installation, and groundwater sample collection. More than 9,500 cubic yards of soil was removed; FAS conducted the post-excavation confirmation sampling. Samples were analyzed for priority pollutant organics plus 40 (pp + 40) and priority pollutant metals. FAS worked closely with EPA and New Jersey Department of Environmental Protection (NJDEP) representatives as well as operating as laboratory liaison with ITAS for the client.

RAIL TRANSPORT COMPANY

FAS was part of the emergency response team at the derailment and subsequent rupture of 42 cars containing 13 different compounds. The responders took measures to contain the release before assessing the extent of the contamination. The site remediation consisted of both on-site biologic treatment and off-site disposal. Media samples on a routine basis included air, surface water, groundwater, surface soils, and subsurface soils. Off-site removal included the movement of 13,000,000 pounds of product and contaminated soils. On-site treatment included 6,000 cubic yards of material. FAS is managing the sampling to evaluate the impact of the contamination on the shallow aquifer.

Whether for government or commercial clients, FAS offers both its full range and special services capabilities at a reasonable cost for the quality and performance it provides.

ILLINOIS CENTRAL RAILROAD, LIVINGSTON, LOUISIANA

Immediately following a major 43-car derailment, FAS was part of the team that developed and implemented a strategy for assessing the extent of contamination. Extensive sampling and analysis of multimedia environmental samples was completed using mobile laboratories provided and managed by FAS. From these data a remedial alternative was selected and implemented. The site is currently undergoing groundwater remediation with FAS staff managing the effort with support from IT Remediation and Analytical Services.

MANUFACTURER

This site was originally placed on the Abandoned Sites List by the California DHS. FAS was required to develop work plans, perform a remedial investigation, recommend cleanup and disposal, and act as a liaison between the client and the Department of Health Services. Through FAS efforts, the site was taken off the Abandoned Sites List and the property was released for escrow procedures.

CHEMICAL MANUFACTURER

This project involved the characterization of evaporation impoundment pounds to determine their applicability to the Toxic Pits Cleanup Act (TPCA). FAS prepared and submitted work plans to the California Regional Water Quality Control Board (CRWQCB). The plans called for the collection of more than 400 samples of liquid and depth integrated sludge from the ponds. FAS had to design and modify sampling equipment to collect representative samples. FAS prepared the final characterization report for the CRWQCB and acted as the client's liaison.

TRUCKING COMPANY

This was an emergency response that included the remediation of a truck load of diesel that spilled into a creek and involved overnight sampling of surface water, soil, sediment, and groundwater for diesel contaminants. FAS obtained more than 100 samples in the first day and continues quarterly groundwater monitoring of selected wells. FAS was on site within 4 hours of the spill and began generating analytical data within 24 hours.

FAS has sampled for many high hazard contaminants: PCBs, dioxin/furans, explosives and others. The FAS technical field staff are accustomed to working in a wide variety of site circumstances, with varying levels of protection.

CHEMICAL MANUFACTURER

In conjunction with an RI/FS conducted by an independent consultant to a large chemical manufacturer, FAS conducted a duplicate study to determine the possibility of degradation of 2,3,7,8-TCDD on an NPL, Superfund site. A field sampling team collected more than 300 biological (bullfrogs, woodducks, and fish), soil and sediment samples in hostile terrain along a 130-mile course of waterways and bayous down river from the manufacturing plant. In addition to developing and implementing the sampling plan and managing the project, FAS compiled a statistical variation of all duplicate study results and collaborated with other study participants in developing a summary report that evaluated all collected data and resulted in recommendations eliminating the necessity to remediate the site.

GLASS MANUFACTURER

FAS was called in to make an emergency assessment, conduct preliminary sampling, structure a cleanup plan, and conduct cleanup verification sampling for a transformer-related incident. More than 1,000 wipe, bulk, and air samples were taken and analyzed for PCBs and dioxin/furans. FAS, in conjunction with ITAS, IT Risk Assessment, and Environmental Services has conducted the original emergency response, a contaminant assessment, a risk evaluation assessment, and is now conducting verification sampling as part of a postremediation/closure effort.

CHEMICAL MANUFACTURER

This project involved the sampling of hundreds of chemical manufacturing waste streams for the National Emission Standard for Benzene Waste Operations. FAS designed equipment specifically for the project and obtained more than 240 samples in 10 days.

FAS NATIONAL PROJECT DESCRIPTION SUMMARY

Partial Listing 1986 to Present

						MAJOR CONTAMINANTS/ANALYTICAL PARAMETERS											MATRIX										SPECIAL SERVICES						
STATUS	LOCATION	CUSTOMER TYPE	JOB TYPE	REGULATORY/ CONTRACTING AGENCY	NO. SAMPLES	VOA	BNA	Pesticide	PCB	Metals	Explsvs	Wet Chem	BIO	MW	Diox/ Furans	Other	Soil	Gr.H2O	Surf.H2O	Air	Wipe	Sludge	Sediment	Drum	Biota	Other	Field Screen	Data Validtn	Mobile Lab	UST	QA/QC Pgm. Dvt.	Trial Burn	Data Mgt
A	SC	COM	RI/FS	EPA; STATE; SF; NPL	230	C	C	C	C	C							X	X	X	X			X								X		X
I	TN	COM	ER	STATE	15				X												X												
I	NE/LA	GOV(Army)	HTTS	USATHAMA	>1,500					X	X	X					X		X							X			X		X	X	X
A	CA	COM	ER/REM	STATE; NPL	>500	X											X	X															
A	CA	GOV(DOE)	RI/FS	HAZWRAP	>3,000	C	C	C	C	C		C		C		C	X	X									X		X		X		X
I	CA	COM	RI	TPCA; USEPA; STATE	>400	X	X	X	X	X		X										X									X		X
I	NJ	COM	RI/FS	NJDEP; USEPA	>2,000	C	C	C	C	C					C	X	X	X	X	X	X		X	X		X					X		X
A	NY	COM	REM	NYDEP	>400	C		C	C	C		X					X	X		X		X		X			X		X		X		X
A	TX	COM	CA	NESHAP; USEPA	>100	X																				X					X		X
A	IND	COM	TB	STATE	75	C				C										X						X						X	
A	OH	GOV(DOE)	RI	EPA;STATE;NYSDEC	>50,000	C	C	C	C	C						C	X	X	X	X	X	X	X	X	X	X	X			X		X		X
I	SD	GOV(COE)	ER/REM	STATE	100				X								X				X					X	X						
I	KY	COM	REM	USEPA	1,000				X								X		X	X	X					X			X		X		X
A	CA	GOV(COE)	RI/FS	USEPA	>200	X	X									X	X	X												X	X	X		
A	NJ	COM	CA	N/A	>200				X												X		X										
I	AR	COM	RI/FS	USEPA	>10,000		C	C					C		X		X	X					X		X					X		X	
A	CA	GOV(Navy)	PGM.DVT.	HAZWRAP	N/A	X	X	X	X	X		X					X	X												X			
A	LA	COM	ER/RMDTN	LDEQ; USEPA; ST	>10,000	X										X	X	X	X	X	X				X	X	X	X		X		X	
N/A	CA	N/A	RI	USEPA; ST; LOCAL	>30,000	X	X	X	X	X		X	X	X		X	X	X	X	X		X	X	X						X		X	
A	FL	GOV(Navy)	RI	USEPA;STATE	>100	X	X	X	X	X		X				X	X	X	X				X									X	
A	NY	COM	RI	RCRA	>500					X					X		X			X	X					X						X	
A	TN	GOV	TB	RCRA/STATE/EPA	50	C	C			X		C					X	X	X	X						X			X		X	X	X
I	LA	COM	ER\REM	USEPA; STATE	500				X						X		X			X	X					X						X	
A	CA	GOV	RI/FS	HAZWRAP	Undetermined	X	X	X	X	X	X	X		X			X	X					X				X	X					
A	CA	GOV	RI/FS	NPL; HAZWRAP; BEMO	>3,000	C	C	C	C	C		C				C	X	X	X				X				X			X		X	
A	NY	GOV	RI/FS	USEPA; ARCS	>600	C				C							X	X	X				X				X					X	
A	TN	COM	CA	NPDES; EPA	50	X	X	X							X								X		X	X						X	
I	MA	COM	RI	STATE	50	X												X	X											X			
A	CA	GOV	RI/FS	RCRA;HAZWRAP;NPL	>5,000	C	C	C	C	C		C				C	X	X	X												X		X
A	NJ	COM	REM	USEPA; NPL	>1,000	X	X	X	X	X		X					X	X	X												X		
A	TX	COM	TB;HTTS	TSCA;RCRA;EPA;SF	>200	C	C		C	C		C			X		X	X	X	X		X						X	X	X	X		
A	AK	GOV(Navy)	REM	USEPA	>700	X		X	X	X		X					X	X	X				X					X					
A	CA	GOV(Navy)	RI/FS	HAZWRAP	>1,000	C	C	C	C	C	C	C	X				X	X	X				X		X								
I	TN	COM	RI/FS	RCRA	>3,000	C	C			C		C	C	C			X	X	X	X		X	X	X			X	X					
I	CA	COM	ER/REM	STATE; USEPA	>2,000				X						X	X				X	X	X				X					X		X
I	CA	COM	RET/REM	STATE; ASP	>200	X						X					X							X			X				X		X
A	CT	COM	TB	RCRA/EPA	>200	C	C			C		C			C			X	X	X									X		X	X	X
I	OK	COM	RI	USEPA	>750				X						X	X				X	X					X					X		X
I	Var.	COM	SA	N/A	150															X													
A	CA	GOV(Navy)	PGM.DVT.	EPA	N/A																												
A	AR	COM	ER/REM	STATE	>2,000		X									X	X	X	X	X			X			X	X		X		X		X
I	AR	COM	ER/REM	STATE	500		X									X	X	X	X							X							X
A	CA	COM	ER	STATE	>100											X				X													
I	TX	COM	ER/REM	STATE	200		X										X	X	X								X							
I	FRANCE	COM	RI	NATL GOV FRANCE	100				X						X						X													
A	CA	COM	RI	STATE	>500	X												X													X		
I	UT	GOV	TB	USATHAM/USAEHAA	>500	C	C		C			C			C	C				X	X										X	X	X
A	CA	COM	CA	NPDES	>100	X						X				X			X												X		X
A	CT	COM	CA	CTDEP	>100				X												X					X							
I	AR	COM	RI	USEPA; SF	200		C	C	C	C					X		X						X		X	X							X
I	AZ	GOV	RI	HAZWRAP	>200	C	C	C	C	C		C				X		X															

STATUS: I = Inactive; A = Active

CUSTOMER TYPE: COM = Commercial; GOV = Government (Where known, which branch.)

JOB TYPE: RI = Remedial Investigation; RI/FS = Remedial Investigation linked to a Feasibility Study; CA = Contaminant Assessment; PGM. DVT. = Sampling and field analytical program development HTTS = IT's Hybrid Thermal Treatment System; REM = Remediation; TB = Trial Burn; SA = Sampling and Analytical support

REGULATORY/ CONTRACTING AGENCY: EPA = USEPA; STATE = any state regulatory commission; for example, Regional Water Control Board, Department of Health Services, Air Quality Board, etc.; SF = Superfund Site; NPL = National Priority List; N/A = Not applicable; HAZWRAP = Hazardous Waste Remediation Action Program; USATHAMA = U.S. Army Toxic & Hazardous Materials Agency.

MAJOR CONTAMINANTS/ANALYTICAL PARAMETERS: "X" indicates inclusive parameters, "C" = inclusive parameters using CLP or equivalent protocol.

SPECIAL SERVICES: UST = Underground Storage Tank; QA/QC Pgm. Dvt. = QA/QC Program Development indicates creation of project-specific Quality Assurance Program Plan that superceded the standard QA/QC plan

EXPERIENCE SUMMARIES - FAS KEY PERSONNEL

James C. Reid, *Business Unit Manager*

Mr. Reid brings training in zoology and chemistry to the Field Analytical Services (FAS) group. As project manager, he develops sampling and analysis plans, supervises sampling crews, and oversees implementation of site-specific sampling plans. He is responsible for maintaining strict quality assurance/quality control (QA/QC) on all work. His field experience includes soil drilling; rock coring; groundwater monitoring; soil organic vapor monitoring; wipe sampling; air monitoring; and soil, surface, and groundwater sampling. Mr. Reid also has direct responsibility for and experience in preparing proposals, developing budgets and cost controls for all size projects, and administrative project management.

Carol A. Erikson*, Senior Analytical Consultant*

Ms. Erikson's technical expertise is in the field of environmental chemistry, in particular the chemical analysis of environmental samples for a broad range of organic and inorganic pollutants. She has managed the sampling and analytical portions of several major field projects, so she has direct experience with field and laboratory QC procedures, data management, and meeting the requirements of state and federal agencies. Currently, her position with FAS includes project administration, analytical program development, litigation preparation, and data validation program development and management.

In 1989, International Technology Corporation established the technical Associate Career Program to honor environmental management specialists for outstanding technical achievements. FAS is proud to have one Senior Technical Associate and four Technical Associates among its 43 member team.

William C. Anderson*, Analytical Project Manager*

Dr. Anderson has experience as an analytical project manager on a variety of projects related to environmental testing. He has extensive experience in the role of analytical program design, particularly with regard to incinerator trial burn testing. As an analytical chemist, he contributes to the design of testing protocols, as well as the QA/QC protocols, which are used to judge the performance of hazardous waste incinerators by U.S. Environmental Protection Agency (EPA) and state regulatory agencies.

Ronald B. Kenyon*, Business Unit Manager*

Mr. Kenyon is a manager responsible for the daily business operations of a group that specializes in on-site analyses and field sampling programs. He has been responsible for supporting the field sampling and analytical components of large engineering remedial investigation/feasibility studies (RI/FS) and remediation projects. While serving as a field sampling specialist, he gained experience sampling all types of media for multiple parameters. In addition to soil, groundwater, surface water, sediment, biota, waste, and sludge, he has collected and supervised the collection of drum, air, and asbestos samples.

***John W. Ragsdale**, III, Business Unit Manager*

Mr. Ragsdale has been in field sampling services for more than 15 years. During this time, he has gained broad experience in both laboratory and field operations, including hazardous chemical spills, sampling for environmental surveys, National Pollutant Discharge Elimination System (NPDES) permit collection, and environmental cleanup.

Mr. Ragsdale has supervised environmental cleanup activities, data collection for all aspects of water and soil sampling, use of drill rigs for deep and shallow sampling and installation of monitoring wells for groundwater analysis and gasoline recovery. His on-site cleanup operations experience has included train derailments, chemical and manufacturing plant spills, and highway transportation incidents. He has designed and supervised large-scale sampling schemes for major soil excavation projects. He has performed extensive river sediment sampling for PCBs, dioxins, and mercury contamination in water, flora, and fauna. He has experience in specialized sample preparations for wastewater, chemical, and colorimetric analyses. He has extensive experience in field QA/QC procedures, chain-of-custody, packaging, and transportation of samples from field to laboratory.

FAS personnel have been recipients not only of ITAS divisional quality awards, but also regional level awards in recognition of continuous commitment to quality.

***Sabrina Peterson** , Business Unit Manager*

Ms. Peterson manages the southwestern FAS office. She has a strong background in laboratory work which includes experience with such instruments as the GC, IR, MS, and AA. Her laboratory experience includes analytical methods that require EPA protocols. Her past roles included QA supervision of a field laboratory, project management, and design of environmental remediation systems. Her responsibilities also have included maintenance of site monitoring equipment, equipment procurement, and supervision of subcontractors and interacting with various regulatory agencies to obtain permits for treatment systems design and operations. She also has direct experience with underground storage tank testing, groundwater remediation, vapor extraction system, and free product recovery.

***Mallon Kent Davis**, Manager of Systems Development*

Mr. Davis has extensive experience in the role of project manager of large data base systems and has been responsible for the timely delivery of many different types of data base systems for clients such as General Electric, Du Pont, AT&T, Monsanto, Robert Bosch, and others. He also has served as senior consultant on many large data base projects. He has performed analysis, design, and development duties, as well as training end-users and programming staffs. Currently, he is the project manager of the ITAS Laboratory Information Management System (LIMS) project. He is responsible for the day-to-day management of resources, hardware, and software for this national effort.

***Gabriel A. Dib**, Profit Center Manager*

Mr. Dib was responsible for FAS coordination and supervision of all environmental activities on IT's hazardous waste disposal sites, including groundwater, soil, sludge, and air monitoring. He is a registered environmental assessor (REA) with extensive experience in project management involving hazardous chemicals/ waste, sampling, and remediation. He has directed the preparation of RI/FS work plans and cost estimates. He has a strong background in environmental compliance, hazardous waste analysis, and treatment processes. He has profit center responsibilities and is involved in client and regulatory agency negotiations.

***Dana S. Simerly**, Analytical Project Manager*

Mr. Simerly's technical background is oriented toward sampling and sampling techniques that maintain strict integrity in an analytical criterion. He has extensive experience in epidemiological procedures for determining methodologies as well as conducting field tests and investigating demographic indicators for distribution/ contamination ratios.

In 1987, a FAS senior technical staff member was one of the recipients of the first IT national Environmental Projects Group Quality Award, IT Corporation's most prestigious quality award. Since then, four other FAS technical team members have received regional or national quality awards both for overall commitment to quality and as a direct result of project-specific efforts.

As an analytical project manager for FAS, he currently is involved in several projects that primarily concern PCBs and dioxin. He is instrumental in compiling standard operating procedures for a sampling manual of practice and has initiated a program for specialized collection instruments. He is presently coordinating portions of the FAS Environmental Sampling Training course given to internal and external clients.

***William A. Trippet II**, Profit Center Manager*

Mr. Trippet is a Certified Project Director and professional geologist with more than 17 years of environmental management experience. He has dealt with complex groundwater and groundwater contamination issues at CERCLA/RCRA facilities. He has managed large groundwater contamination studies both as a public employee and in industrial and consulting fields.

He has directly supervised many RCRA groundwater studies for industrial clients throughout the southwestern states. As project director for a $9 million DOD contract, he worked at both RCRA and CERCLA sites across the United States. He has supervised large complex contaminant delineation and remediation programs at RCRA facilities and has completed all work under budget and within the specified time schedule.

In addition to developing and managing liquid mixed waste disposal programs, he has been qualified as a groundwater expert in conjunction with successful efforts to change environmental legislation at both the state and federal levels. He is also very experienced with multiphase and nonaqueous liquid contamination investigations.

***A. Douglas Peery**, Senior Field Analytical Specialist*

Mr. Peery has more than 11 years experience in developing and executing legally supportable sampling and analytical programs for assessing and monitoring environmental contaminants. This experience includes sampling and analytical programs for air, water, and wastewater monitoring, site cleanup, monitoring and assessment, and RI/FSs.

Current project responsibilities include development of FAS field analytical capabilities especially soil organic vapor sampling, analysis, and documentation methodologies. He has participated in many small and large RI and RI/FS projects that used soil organic vapor survey information of prepared sampling and analytical plans and/or sampling strategies.

***J. Brin Owen, III**, Senior Field Analytical Specialist*

Mr. Owen provides management and environmental expertise to FAS in the areas of groundwater, soil, soil gas, and air sampling as they relate to small and large environmental projects. As a field analytical specialist, he develops sampling and analysis plans, supervises sampling crews, and is responsible for maintaining strict field QA/QC programs. His experience also includes proposal preparation, treatment plant maintenance and operation, and data evaluation/interpretation.

FAS personnel have a personal and professional commitment to conduct all activities in a healthy and safe manner. FAS technical personnel have undergone 40 plus hours of site remediation/ hazards and protection training as specified in OSHA regulation 29 CFR Part 1910.34

***Cynthia G. Johnson**, Information Management Specialist*

Ms. Johnson has over five years experience in the development and management of computerized financial tracking systems for large field projects. As an information management specialist, she has worked with data bases, corporate and project financial reports, graphics, and desktop publishing and is responsible for the development of FAS marketing materials. She has special expertise in project administration especially determining and implementing cost control measures that allow for cost effective and timely project completion.

***Gurpal S. Deol**, Field Analytical Specialist III/QC Coordinator*

Mr. Deol is an analytical chemist with a strong background and progressive experience in fixed base and field vocabulary QA/QC. He is responsible for conducting internal audits of the FAS mobile laboratories, training field analytical technicians, and developing QA/QC manuals.

***Andrew J. Kim**, Field Analytical Specialist*

Mr. Kim is a trained analytical chemist with special expertise in laboratory and field tracking, and reporting of sample data. He is responsible for marketing and supervising the mobile laboratories operations for FAS.

Summary of Qualifications, Field Analytical Services

FAS was created within the ITAS network of analytical laboratories to standardize field sample collection activities thus minimizing the liability associated with collecting environmental samples. In the five years since it was formed, FAS has demonstrated its expertise in field sampling and field analytical techniques and methodologies and has helped IT Corporation define national standards for these activities. Because of its commitment to quality assurance/quality control standards and the resultant quality of its product, FAS ensures the integrity of all aspects of its field sampling and field analytical efforts.

The FAS team of field chemists and other technical professionals can provide expert assistance in sampling plan development, sampling plan execution, sample management, data management, documentation, laboratory interface, sampling and analytical QA/QC, field analytical program development, and analytical program and project management. The FAS senior technical staff can assist with regulatory agency interface and litigation preparation and will provide expert testimony if required. This level of expertise is available nationwide only from ITAS.